

WHAT IS CLAIMED IS:

1. A chemical vapor deposition apparatus, comprising:
 - a process chamber, inside of which a wafer is secured to perform a deposition process thereon;
 - a gas supply assembly mounted in the process chamber and configured to supply a process gas inside the process chamber;
 - a vacuum pump mounted in the process chamber and configured to exhaust the process gas from the process chamber;
 - a chuck mounted in the process chamber and configured to support the wafer;
 - a position control assembly configured to raise and lower the chuck;
 - and
 - a controller constructed and arranged to control the position control assembly such that a distance between the wafer and the gas supply assembly is varied during the deposition process.
2. The apparatus of claim 1, wherein the gas supply assembly is mounted at a first end of the process chamber and the vacuum pump is mounted at a second end of the process chamber, said first end being substantially opposite to said second end.
3. The apparatus of claim 1, further comprising a process gas line and a control valve,
 - wherein:
 - the gas supply assembly is divided into a first section that occupies a center portion of the gas supply assembly, and a second section that occupies an outer portion of the gas supply assembly,
 - the process gas line is connected to each of the first section and the second section, and

the control valve, opened and closed by the controller, is mounted on the process gas line of the second section.

4. The apparatus of claim 1, wherein the controller controls the position control assembly such that the distance between the wafer and the gas supply assembly is increased during the deposition process.

5. The apparatus of claim 1, wherein the controller controls the position control assembly such that the distance between the wafer and the gas supply assembly is increased as a time required to form the deposition layer elapses.

6. The apparatus of claim 5, wherein the distance between the wafer and the gas supply assembly is increased in stages or in a continuous manner.

7. The apparatus of claim 5, wherein the controller controls the position control assembly such that the distance between the wafer and the gas supply assembly is adjusted to three positions including an initial position, an intermediate position, and an end position.

8. The apparatus of claim 3, wherein the control valve is closed in an initial process time and is opened after the initial process time.

9. A chemical vapor deposition method for forming a deposition layer on a wafer, comprising:

supplying a process gas to a process chamber;

dividing a process time required for forming the deposition layer into a plurality of process stages,

varying a distance between the wafer and a gas supply assembly according to the process stages, and

exhausting the process gas.

10. The method of claim 9, wherein varying the distance between the wafer and the gas supply assembly comprises increasing the distance between the wafer and the gas process assembly as the process time elapses.

11. The method of claim 8, further comprising adjusting the distance between the wafer and the gas supply assembly to three positions including an initial position, an intermediate position, and an end position.

12. The method of claim 11, wherein the supplying comprises supplying the process gas to only a center section of the wafer in the initial position, and to the center section and edge portions of the wafer in the intermediate and end positions.

13. The method of claim 9, wherein varying the distance between the wafer and the gas supply assembly comprises continuously varying the distance between the wafer and the gas supply assembly.